

NOTES ON THE COLOURATION OF THE YOUNG  
FOLIAGE OF EUCALYPTUS.

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Most people have noticed, particularly during the winter and early spring, that on the young branchlets, the foliage of Eucalypts is, in some species, of a brilliant colour, shades of crimson and purple being the commonest.

There are few allusions to the character in botanical literature, one of the few being the following:—

“Then again, the red color of new foliage, so commonly seen here, is an outward sign of adaptation, in that the color apparently acts as a screen to prevent the chemical rays of light (blue end of the spectrum) from penetrating the living workshops; their admission to the young leaf cells would be detrimental; whilst the heat rays (red end) are collected and thus secured as likely to help along the life processes more rapidly to remove the new growth from babyhood to maturity.”\*

Some years ago it entered into my mind to collect data as to the colours in question, but I found practical difficulties arising from the fact that the colours that we see on the living plant alter in tint within a few hours after removal. I then tried taking the register of colours to the trees themselves, but found the standard work I have adopted (Dauthenay’s “Repertoire de Couleurs”) so heavy that it was out of the question to carry it far in the bush. Accordingly I submit some notes only on plants growing wild or cultivated in the Sydney district, but I feel that observers who desire to continue the work may get over the difficulty in many cases by packing the leaves in closely shut tins, and posting them, provided that they are not longer than a day or two in the receptacle.

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\*C. T. Musson in “The Hawkesbury Agricultural College Journal,” March 25, 1905, p.68.

I tried, while in the bush, imitating the records by blotches of water colour, but failed; oil colours would be better, but I had neither the ability nor the time to adopt this method.

It is understood, of course, that my observations are so few, that there is but little opportunity for generalization. Without going so far as to say that in all cases the botanist of the future will be able to determine every species by the colour of its flush, I believe that my observations in regard to the matter (most of them not standardised) justify the belief that a number of species, and some groups, can be diagnosed by this means.

I quote the dates and localities, because we have yet to learn whether the colour varies to any extent with these variables.

Each species (or rather each plant, for each plant varies somewhat within the species) has an *optimum* for colour, which requires to be ascertained. It will therefore be necessary to make a number of observations (as many as possible should be made on the same tree) before we ascertain the colour which we record as most characteristic of the species.

In some cases (not reproduced) I have marked the colours "secondary," as I am of opinion that they are not characteristic of the species, but represent one or more outside colours. In a few I have noted the colours of the young twigs, for whatever they may be worth. In most cases the colour-references have been made by Miss Margaret Flockton or Mr. W. F. Blakely. Most of the leaves have been collected by Mr. Blakely and Mr. J. L. Boorman.

A. The *Renantherae* preponderatingly cluster around vinous purple (Plate 171).

*E. microcorys*, placed by Bentham and Mueller in this Section, has dull carmine lake (plate 106), and in this respect and in a number of other characters (e.g., kino, anthers and seed-lings), as I shall show in my "Critical Revision of the Genus *Eucalyptus*," it is so aberrant, that it should be removed from the *Renantherae*.

*E. capitellata* Sm.

Port Jackson.

Young foliage—"vinous purple," see Plate 171.

Very young foliage—"garnet dull," Plate 163, shades 1-3.

*E. eugenioides* Sieb.

1. Cabramatta, 10.7.17.

Young foliage—"vinous purple," Plate 171, shade 4.

2. Bankstown, 23.7.19, Plate 171, shades 1-3.

3. Glenfield, 9.10.18.

"Slate violet," Plate 173, shades 1-4.

*E. pilularis* Sm.

Como, George's River 9.9.16.

Young foliage—"vinous purple," Plate 171, shades 1-4.

Young twigs angular and red.

*E. piperita* Sm.

1. Corso, Manly, 14.9.16.

"Vinous purple," Plate 171, shade 3.

(Young twigs pale yellow-green, tinted with red).

2. Sutherland, Como, 16.10.16.

"Slate violet," Plate 173, shades 1-4.

3. Blackheath, 12.17.

Young foliage—"dark violet," Plate 193, shades 1-4.

(These were two days old).

4. Emu Plains to Blaxland, 17.4.19.

"Garnet brown," Plate 164, shades 1-4.

*E. radiata* Sieb.

Blackheath, 12.17.

Young foliage—"plum violet," Plate 172, shades 3-4.

(These were two days old when registered.)

*E. Sieberiana* F. v. M.

1. Spit Road, Manly, 14.9.16.

Young foliage—"plum violet," Plate 172, shades 3-4.

Young twigs—a rich deep red.

2. Same locality, 28.7.17.

Young foliage—"plum violet," Plate 172.

Young twigs scarlet to purple brown.

3. Near Mt. Colah Station, near Hornsby, 7.17.

Young twigs—"dull purple lake," Plate 170, shades 3-4.

Very young leaves—"deep carmine violet," Plate 174, shades 3-4; the older leaves shading to violet-lilae, Plate 175, shades 2-4.

4. Blackheath, 12.17.

Young foliage—"plum violet," Plate 172, shades 1-4.

(Two days old when registered.)

*E. umbra* R. T. Baker.

Hawkesbury to Cowan by the old road. 26.1.18.

Young foliage—"dull purple lake," Plate 170, shades 1-4.

*E. microcorys* F. v. M.

Cultivated, Botanic Gardens, Sydney, 8.17.

Juvenile foliage—"dull carmine lake," Plate 106, shades 1-4.

B. The *Corymbosae* have mostly shades of purple. All belong to the same general group, the garnet-brown of *E. haematoxyton* being most aberrant, but we must learn more of this species.

*E. corymbosa* Sm.

1. Como, George's River, 9.16.

Young foliage—"purple brown," Plate 166, shade 2.

2. Old Berowra Road, Hornsby, 17.6.17.

"Purple brown," Plate 166, shades 3-4.

3. Sutherland, Como. 16.10.18.

"Vinous purple," Plate 171, shades 1-4.

*E. eximia* Schauer.

Emu Plains to Blaxland, 17.4.19.

"Plum violet," Plate 172, shades 1-4.

*E. haematoxyton* Maiden.

(A W.A. species cultivated Botanic Gardens, Sydney).

7.1.18.

Young foliage—"garnet brown," Plate 164, shades 1-4.

*E. maculata* Hook.

Mt. Misery, Liverpool. 17.7.17.

Young twigs—"purple brown," Plate 166, shades 2-3.

Highly glazed.

Young twigs—"purple brown," Plate 166, shades 2-3.

C. *E. amplifolia*, *E. botryoides*, *E. hemiphloia*, *E. siderophloia*.

These are four miscellaneous species. The slender evidence shows an affinity between the first, third, and fourth species that will be kept in mind, and between the second and the fourth.

*E. amplifolia* Naudin.

Liverpool, 17.7.17.

Young foliage—"plum violet," Plate 172, shades 1-3.

Young twigs—"plum violet," Plate 172, shades 3-4.

*E. botryoides* Sm.

1. Corso, Manly, 14.9.16.

Young foliage—"garnet," Plate 162. (This is a difficult plate to use, because of its lustre, its appearance becoming nearer to or more removed from Plate 193 according to the incidence of the light.)

2. Glenfield, George's River, 9.10.18.

"Dark violet," Plate 193, shades 1-4.

*E. hemiphloia* F. v. M.

1. Cabramatta, 10.7.17.

Young foliage—"vinous purple," Plate 171, shades 2-3.

Young twigs—Plate 171.

2. Bankstown, 22.7.19.

Young foliage—Plate 171, shades 1-4.

*E. siderophloia* Benth.

- Cabramatta, 10.7.17.

Young foliage—"garnet brown," Plate 164, shade 3; also "vinous purple," Plate 171, shade 3.

Young twigs—"garnet brown" (Plate 164), "purple brown" (Plate 166).

D. *E. haemastoma*, *E. punctata*, *E. squamosa*, *E. virgata*.

In these species I have only noted greens in the young foliage so far, but we have only touched the fringe of the subject.

*E. haemastoma* Sm. var. *micrantha*.

- Como, George's River, 9.16.

"Dark drab green," Plate 237, shade 2. Midrib yellow or reddish. Stems angular, red or yellow.

*E. punctata* DC.

- Como, George's River, 9.16.

Young foliage—"laurel green," Plate 269, shade 2. Back of leaves a pale glaucous green, shiny on the upper side, midrib yellow or red.

Young twigs red and yellow, angular.

*E. squamosa* Deane and Maiden.

- Como, George's River, 9.16.

Young foliage—"dull sage green," Plate 278, shade 2.

Leaves the same colour on both sides. Red midribs and edges. Surface dull.

Young twigs bright red, terete or slightly angled.

*E. virgata* Sieb. (*Luehmanniana* F. v. M.)

## 1. National Park, 4.7.17.

Young foliage—"quaker green," Plate 271, shade 1; also  
 "pale green oxide of chromium," Plate 243, shades 1-4;  
 "old moss green," Plate 290, shade 1.

Young twigs and petioles—"yellow green" or "primrose  
 yellow," Plate 16.

## 2. Same place and date.

Young foliage—Plates 271 and 245.

Petioles—"lemon yellow," Plate 20, shade 4.

Young stems—"ox's blood red," Plate 94, shade 2.

## 3. Spit Road, Manly, 14.9.16.

Young foliage—"spinach green," Plate 270, shade 2.

Leaves the same on both sides, surface dull, bright yellow midrib and edges.

Branchlets coarse, angular, flattened, lemon-yellow.

The following notes on colours have not been standardised by reference to Dauthenay, or any similar work.

a. *E. affinis*. Stuart Town (J.L.B.) "Leaves atropurpureus."

b. Red (bleeding heart) leaves in *E. obliqua* (Tas.).

c. "As a young tree, the marked purplish cast of its foliage gives it an ornamental appearance." *E. Planchoniana* in Part IX., p. 291, C.R.

d. "A specimen of *E. purpurascens* Link, in Herb. Vindob., is in the opposite-leaved stage, and is probably *E. amygdalina* Labill. The underside of the young foliage of this species is often purple. *E. amygdalina*, C.R., Part VI., p. 153.